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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,618	07/28/2003	Hieronymus Andriessen	223592	5841

23460 7590 11/15/2004

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EXAMINER

XU, LING X

ART UNIT PAPER NUMBER

1775

DATE MAILED: 11/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/628,618

Applicant(s)

ANDRIESEN, HIERONYMUS

Examiner

Ling X. Xu

Art Unit

1775

MKZ

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 4-11 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-22 is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on 9/20/2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any US patent granted on pending US application No. 10/629,242, filed on July 30, 2003 or pending US application No. 10/630,492, filed on July 30, 2003 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Specification

2. The disclosure stands objected to because of the following:

The Brief Description of the Drawing(s) is missing, *See* MPEP § 608.01(f) and 37 CFR 1.74. Appropriate correction is required.

3. With respect to the objection of incorporation of essential material into the specification, upon reconsideration, the examiner withdraws the objection because the foreign patents and the non-patent publications incorporated on pages 2-3 and 11 of the specification are considered nonessential subject matter for the purposes of indicating the back-ground of the invention or illustrating the state of the art, see MPEP 608.01(p).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Vogel et al. (J. Phys. Chem. 1994, 98, p3183-3188).

Vogel discloses the sensitization of nano-porous metal oxide semiconductor such as titanium oxide, tin oxide, niobium oxide and tantalum oxide by quantum-sized cadmium sulfide, lead sulfide, antimony sulfide (“metal chalcogenide nano-particles”) (abstract). The process of the sensitization includes the same dipping in the metal chalcogenide solution several times (left column, page 3184). Accordingly, the nano-porous metal oxide disclosed by Vogel is considered in-situ spectrally sensitized on the internal and external surface with metal chalcogenide nano-particles.

Vogel discloses the same metal oxide and metal chalcogenide used in the present application see specification pages 6-7. Accordingly, the same metal oxide and metal chalcogenide would also have the same band gap as recited in claim 1

Vogel also discloses that the used of the sensitized nano-porous metal oxide as the electrode in the electrolyte containing $\text{KH}_2\text{PO}_4/\text{K}_2\text{HPO}_4$ (left column, page 3184). As disclosed in the specification page 9, the process of adding phosphate to the nano-porous metal oxide is to rinse the metal oxide with an aqueous solution containing a phosphate. Accordingly, the nano-

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porous metal oxide is considered to contain the phosphate after the metal oxide immerses in the aqueous electrolyte solution having the phosphate.

Accordingly, Vogel meets the limitations of claims 1-2.

Allowable Subject Matter

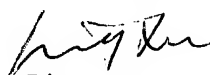
5. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 15-22 are allowed.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling X. Xu whose telephone number is 571-272-1546. The examiner can normally be reached on 8:00 - 4:30 Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah D. Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ling X. Xu
Examiner
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